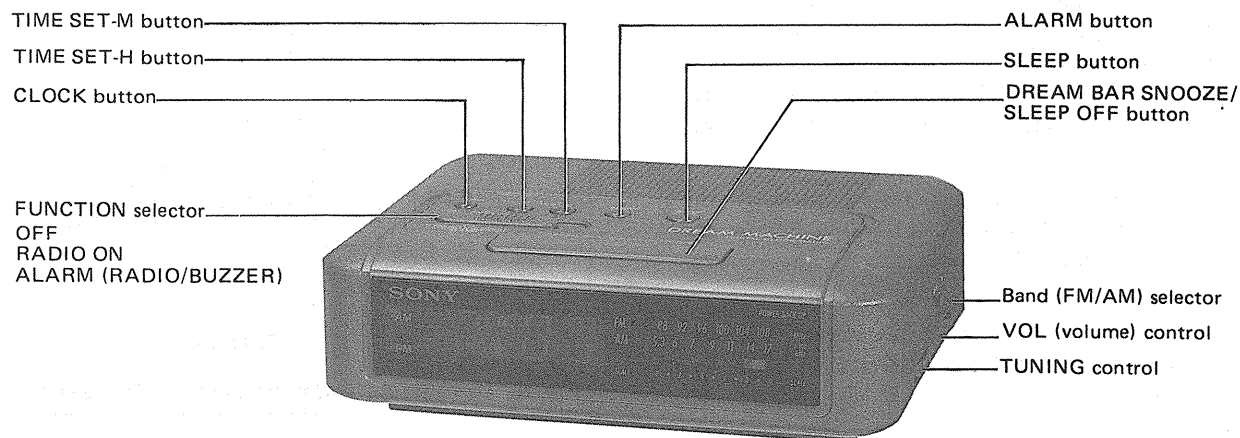


ICF-C240

SERVICE MANUAL

US Model
Canadian Model





SPECIFICATIONS

Frequency range	FM: 87.6—108 MHz AM: 530—1,710 kHz
Antenna	FM: AC power cord antenna AM: Built-in ferrite bar antenna
Speaker	Approx. 6.6 cm (2 7/8 inches) dia.
Power output	100 mW (at 10% harmonic distortion)
Power requirement	120 V AC, 60 Hz For the power backup function: 9 V DC, one 6F22 battery
Battery life	Approx. 80 hours, using Sony battery S-006P (U)
Dimensions	Approx. 181.5 × 59 × 144 mm (w/h/d) (7 1/8 × 2 3/8 × 5 7/8 inches) incl. projecting ports and controls
Weight	Approx. 520 g (1 lb 3 oz) not incl. battery

Design and specifications subject to change without notice.


SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

FEATURES

- Electronic digital alarm clock and sleep timer are combined.
- Two wake-up modes available: radio or buzzer alarm.
- DREAM BAR, operable with a feather-light touch, offers two functions: snooze alarm and sleep timer turn off.
- Power back-up function to keep the clock operating during a power interruption, using an optional 6F22 battery.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

FM/AM DIGITAL CLOCK RADIO

SONY®



SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

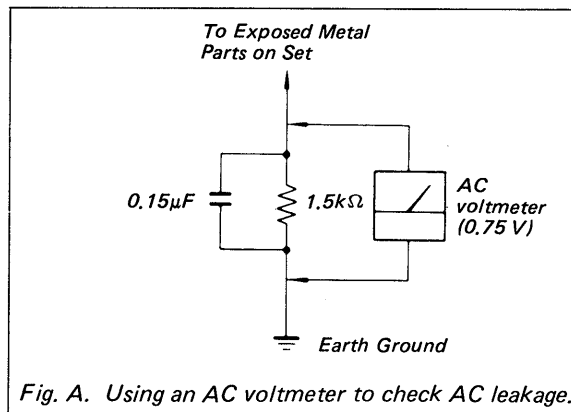


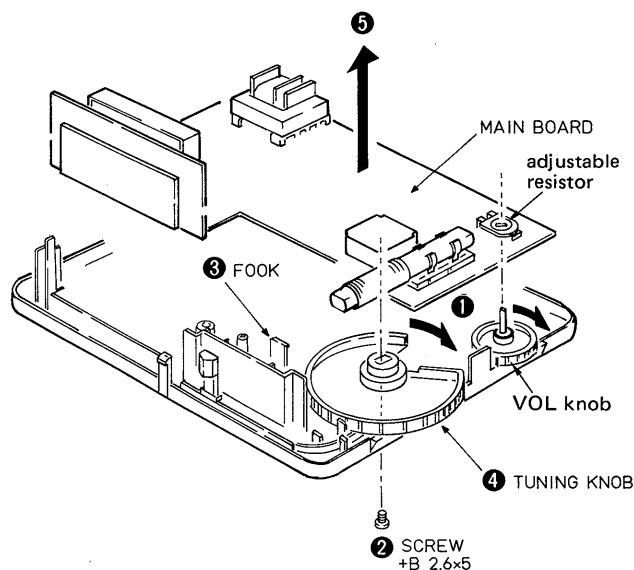
Fig. A. Using an AC voltmeter to check AC leakage.

SECTION 1
GENERAL

1-1. MAIN BOARD REMOVAL

- 1 Turn TUNING knob fully clockwise.
- 2 Remove screw (+B 2.6X5)
- 3 Release fook.
- 4 Remove main board pressing down TUNING knob.

Note: When installing main board, align shaft of VOL knob with a hole of adjustable resistor.




1-2. FUNCTION OF CONTROLS


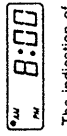
How to Set the Clock

Example: To set to 8:15 AM



1 Plug in the unit.

Flickers: 

2 Set the hour.

CLOCK H  Press. While pressing, the indication of "hour" part counts up. 

3 Set the minute.

CLOCK M  Press. While pressing, the indication of "minute" part counts up. 

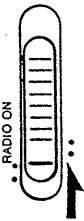
Release the CLOCK button just at 8:15 AM. The clock will begin to operate.

- Each press on the H or M button advances the displayed number by one.
- The minute digits advance to "00" after "59". The hour digits do not advance by pressing M button.


To adjust the time exactly to the second, release the H or M button simultaneously with the radio or telephone time signal.

Radio Operation


1 Turn on the radio.




2 Turn VOL to get sound.



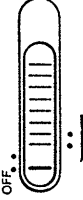
3 Select the desired band.

AMI IFM 

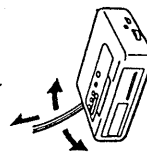
4 Tune in the desired station.

TUNING 

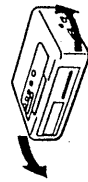
To stop the radio



To improve the radio reception
FM: Extend the AC power cord fully.




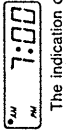
AM: Rotate the unit horizontally.




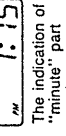
How to Set the Alarm (RADIO or BUZZER)

For radio alarm, first tune in the desired station and adjust the volume.
Example: To set the alarm time to 7:15 AM

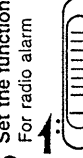
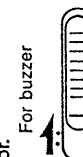
1 Set the hour.

ALARM H  Press. While pressing, the indication of "hour" part counts up. 

2 Set the minute.

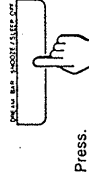
ALARM M  Press. While pressing, the indication of "minute" part counts up. 

3 Set the function selector.

For radio alarm  For buzzer 

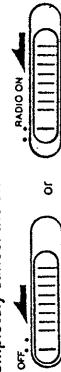
The desired alarm sound will come on at the preset time, and shut off automatically after 119 minutes.

If you want to doze a few more minutes



The alarm sound will be silenced, but will automatically come on again after about nine minutes. You can repeat this snooze function as many times as you like within 119 minutes from the preset alarm time.

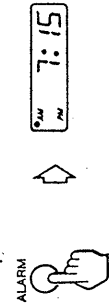
To completely cancel the alarm mode



To set the alarm time to the same time again, repeat step 3 above.

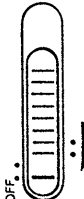
The volume of the alarm sound
The radio volume can be adjusted.
The buzzer volume is fixed.

To check the preset time


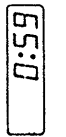


How to Set the Sleep Timer

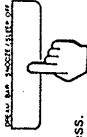
1 While listening to the radio, Set the function selector to OFF.



2 Press SLEEP.
The radio turns on, and will turn off after 59 minutes.

To turn off the radio before the preset time



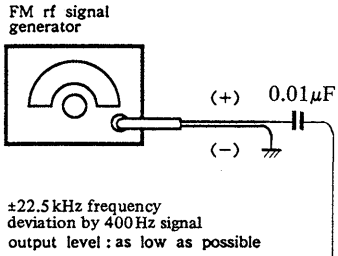
Every time the SLEEP button is pressed, the sleep timer is reset to 59 minutes.

If the preset alarm time comes while the sleep timer is operating
The alarm buzzer will not sound.

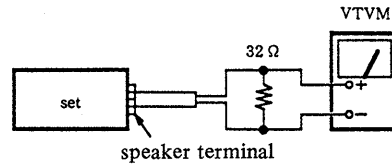
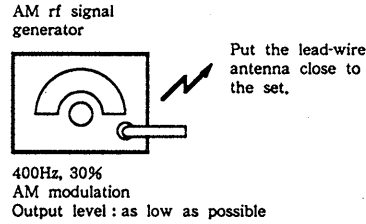
SECTION 2 ELECTRICAL ADJUSTMENTS

RADIO SECTION

FM Section



AM Section



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L4	86.5MHz
CT2	109.5MHz

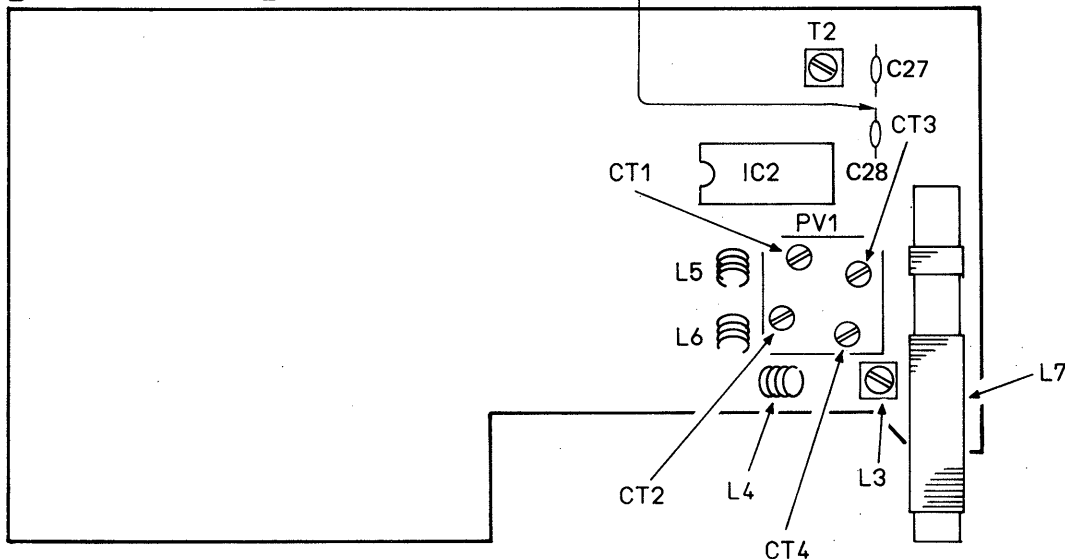
FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L5, L6	86.5MHz
CT1	109.5MHz

AM IF ALIGNMENT	
Adjust for a maximum reading on VTVM.	
T2	
455kHz	

AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L3	520kHz
CT4	1,750kHz

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L7	620kHz
CT3	1,400kHz

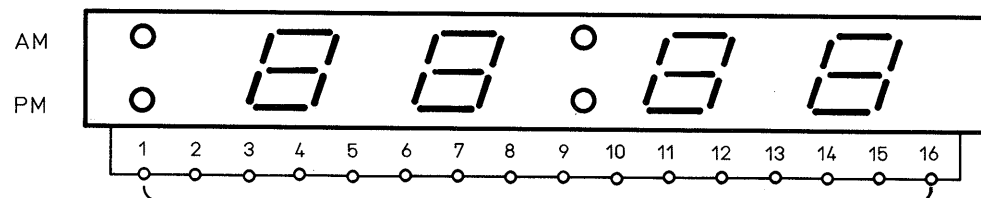
[MAIN BOARD] - component side -



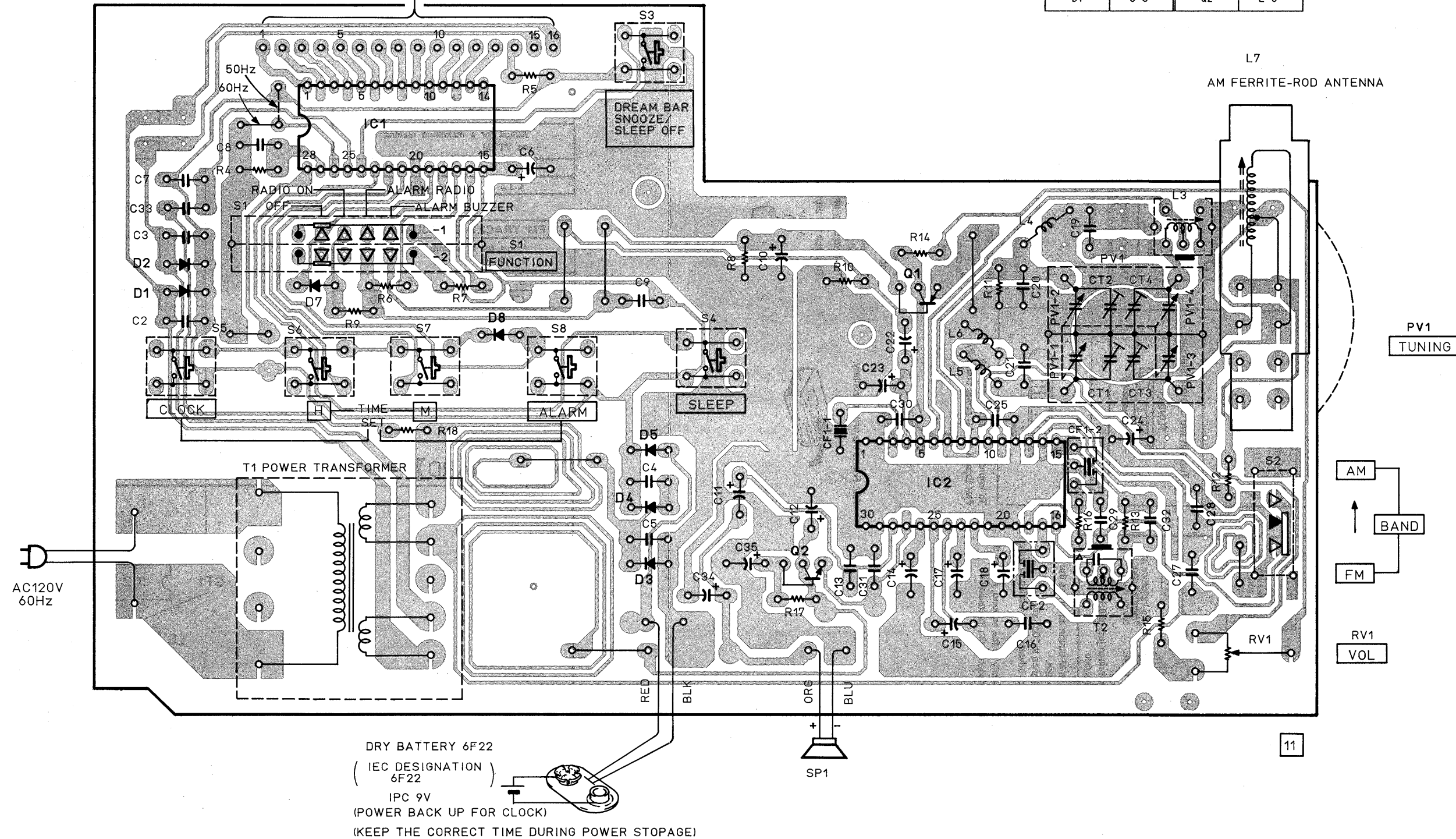
SECTION 3
DIAGRAMS

3-1. PRINTED WIRING BOARDS

D6
LED DISPLAY



【 MAIN BOARD. 】



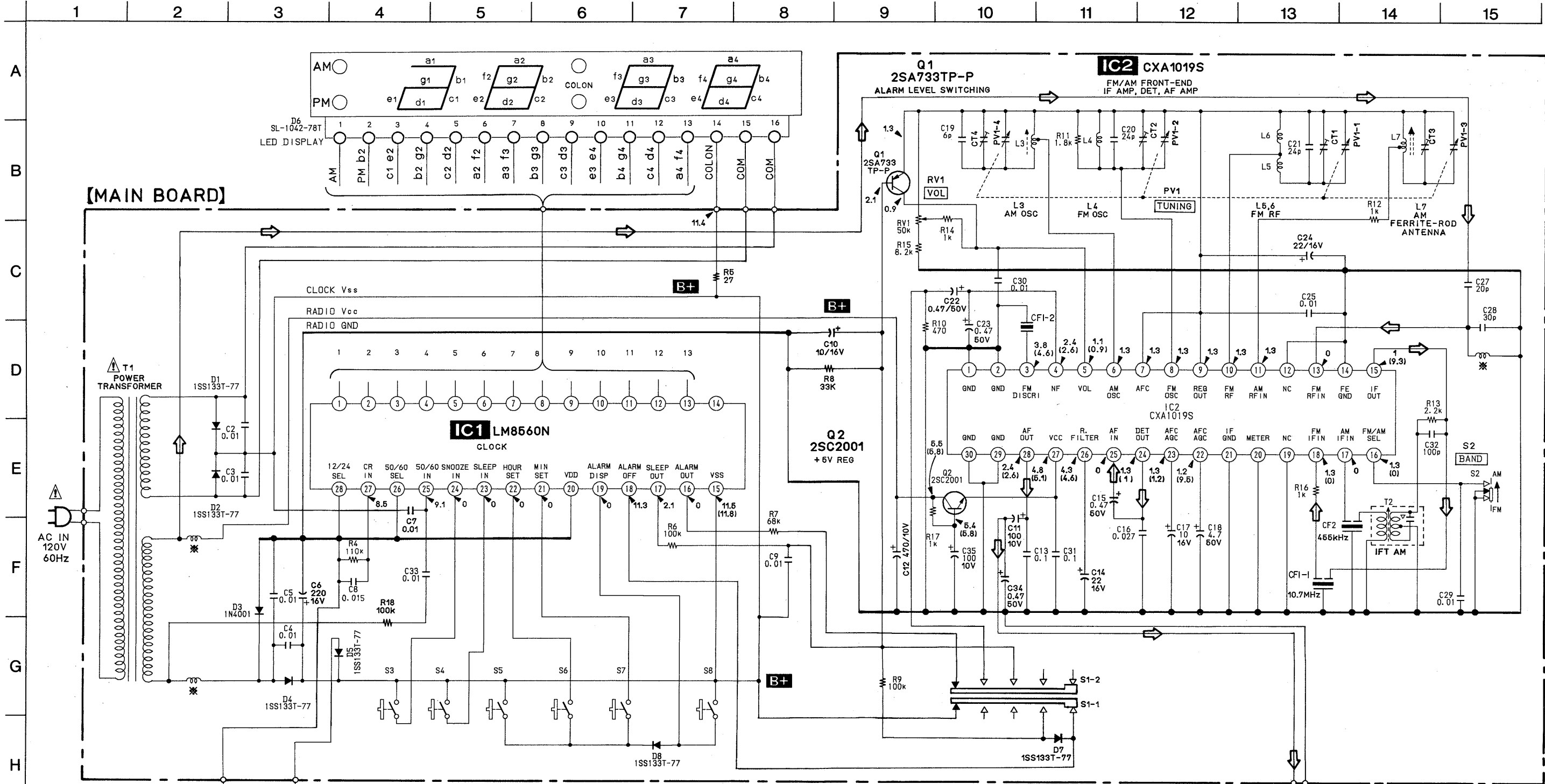
Note:

- : parts extracted from the component side.
- ▨ : indicates side identified with part number.

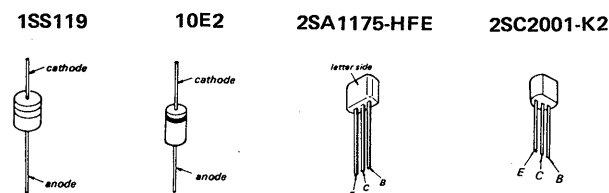
● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D1	C-2	D8	C-4
D2	C-2	IC1	B-3
D3	E-4	IC2	D-6
D4	D-4	Q1	C-6
D5	D-4	Q2	E-5
D6	A-3		
D7	C-3		

3-2. SCHEMATIC DIAGRAM



• SEMICONDUCTOR LEAD LAYOUTS



Note: The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- All capacitors are in μF unless otherwise noted. pF: μpF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
- Δ : internal component.
- **B+** : B+ lines.
- Voltage and waveforms are dc with respect to ground

- under detuned conditions. no mark : FM () : AM
- Voltages are taken with a VOM. (input impedance 10 M Ω) Voltage variations may be noted due to normal production tolerances.
- Signal path. \Rightarrow : FM

SECTION 4 EXPLODED VIEW

NOTE:

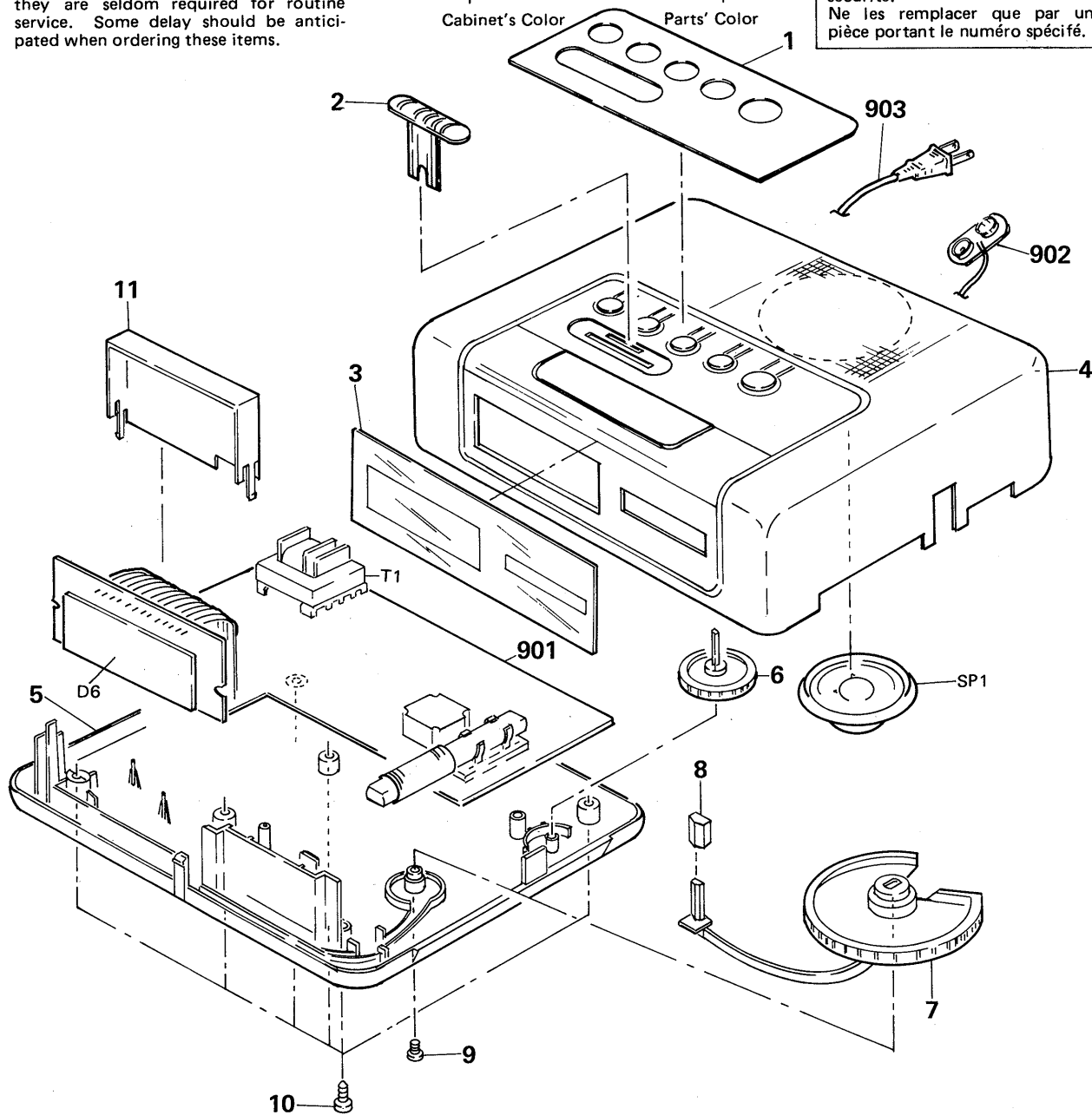
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
Example:
(RED) ... KNOB, BALANCE (WHITE)

↑ Cabinet's Color ↑ Parts' Color

The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



No.	Part No.	Description	Remarks
1	3-902-093-01 3-902-093-11 3-902-093-21	(WHITE)...PLATE, ORNAMENTAL (BEIGE)...PLATE, ORNAMENTAL (GRAY)...PLATE, ORNAMENTAL	
2	3-902-092-01 3-902-092-11 3-902-092-21	(WHITE)...KNOB (FUNCTION) (BEIGE)...KNOB (FUNCTION) (GRAY)...KNOB (FUNCTION)	
3	3-902-090-02	SCALE, DIAL	
4	3-902-097-01 3-902-097-11 3-902-097-21	(WHITE)...CABINET (UPPER) (BEIGE)...CABINET (UPPER) (GRAY)...CABINET (UPPER)	
5	3-902-096-01 3-902-096-11 3-902-096-21	(WHITE)...CABINET (LOWER) (BEIGE)...CABINET (LOWER) (GRAY)...CABINET (LOWER)	

No.	Part No.	Description	Remarks
6	3-902-091-01 3-902-091-11	(GRAY).....KNOB (VOL) (WHITE,BEIGE)...KNOB (VOL)	
7	3-902-474-01 3-902-474-11	(GRAY).....KNOB (TUNING) (WHITE,BEIGE)...KNOB (TUNING)	
8	*3-902-463-01	CAP (POINTER)	
9	7-621-775-20	SCREW +B 2.6X5	
10	7-685-648-79	SCREW +BTP 3X12 TYPE2 N-S	
11	3-902-094-02	STOPPER (DREAM BAR)	
901	*A-3615-317-A	MOUNTED PCB, MAIN	
902	1-535-804-21	SNAP, BATTERY	
903	▲.1-557-102-31	CORD, POWER	
D6	1-808-342-11	DIODE SL-1042-78T	
SP1	1-503-082-00	SPEAKER	
T1	▲.1-449-801-11	TRANSFORMER, POWER	

SECTION 5 ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF: μ F, PF: μ μ F.

RESISTORS

- All resistors are in ohms.
- F: nonflammable

COILS

- MMH: mH, UH: μ H

SEMICONDUCTORS

In each case, U: μ , for example:

UA...: μ A..., UPA...: μ PA...,
UPC...: μ PC, UPD...: μ PD...

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description			
901	*A-3615-317-A	MOUNTED PCB, MAIN			
902	1-535-804-21	SNAP, BATTERY			
903	Δ 1-557-102-31	CORD, POWER			
C2	1-101-004-00	CERAMIC	0.01MF		50V
C3	1-101-004-00	CERAMIC	0.01MF		50V
C4	1-101-004-00	CERAMIC	0.01MF		50V
C5	1-101-004-00	CERAMIC	0.01MF		50V
C6	1-124-120-11	ELECT	220MF	20%	16V
C7	1-101-004-00	CERAMIC	0.01MF		50V
C8	1-130-485-00	MYLAR	0.015	5%	50V
C9	1-161-379-00	CERAMIC		30%	16V
C10	1-123-356-00	ELECT	10MF	20%	16V
C11	1-126-101-11	ELECT	100MF	20%	10V
C12	1-124-472-11	ELECT	470MF	20%	10V
C13	1-162-851-11	CERAMIC	0.1MF	20%	16V
C14	1-123-330-00	ELECT	22MF	20%	16V
C15	1-123-379-00	ELECT	0.47MF	20%	50V
C16	1-161-056-00	CERAMIC	0.027MF	10%	25V
C17	1-123-356-00	ELECT	10MF	20%	16V
C18	1-123-369-00	ELECT	4.7MF	20%	50V
C19	1-102-943-00	CERAMIC	6PF	0.5PF	50V
C20	1-102-960-00	CERAMIC	24PF	5%	50V
C21	1-102-960-00	CERAMIC	24PF	5%	50V
C22	1-123-379-00	ELECT	0.47MF	20%	50V
C23	1-123-379-00	ELECT	0.47MF	20%	50V
C24	1-123-330-00	ELECT	22MF	20%	16V
C25	1-101-004-00	CERAMIC	0.01MF		50V
C27	1-102-958-00	CERAMIC	20PF	5%	50V
C28	1-102-962-00	CERAMIC	30PF	5%	50V
C29	1-101-004-00	CERAMIC	0.01MF		50V
C30	1-101-004-00	CERAMIC	0.01MF		50V
C31	1-162-851-11	CERAMIC	0.1MF	20%	16V
C32	1-102-973-00	CERAMIC	100PF	5%	50V
C33	1-101-004-00	CERAMIC	0.01MF		50V
C34	1-123-379-00	ELECT	0.47MF	20%	50V
C35	1-126-101-11	ELECT	100MF	20%	10V
CF1	1-567-538-71	FILTER, CERAMIC (10.7MHz)			
CF2	1-577-072-11	FILTER, CERAMIC (455kHz)			
CT1-4 } PV1 }	1-151-628-11	CAP, VARIABLE			
D1	8-719-911-19	DIODE 1SS119			
D2	8-719-911-19	DIODE 1SS119			
D3	8-719-200-02	DIODE 10E2			
D4	8-719-911-19	DIODE 1SS119			
D5	8-719-911-19	DIODE 1SS119			
D6	1-808-342-11	DIODE SL-1042-78T			
D7	8-719-911-19	DIODE 1SS119			
D8	8-719-911-19	DIODE 1SS119			

Ref.No.	Part No.	Description			
IC1	8-759-821-46	IC LM8560N			
IC2	8-752-035-29	IC CXA1019S			
L3	1-406-150-11	COIL, OSC (AM)			
L4	*1-422-130-00	COIL, FM OSC			
L5	*1-422-291-11	COIL, AIR-CORE (FM RF)			
L6	*1-422-291-11	COIL, AIR-CORE (FM RF)			
L7	1-402-413-21	ANTENNA, FERRITE-ROD (AM)			
Q1	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q2	8-729-100-13	TRANSISTOR 2SC2001-K2			
R4	1-247-880-11	CARBON	110K	5%	1/4W
R5	1-249-398-11	CARBON	27	5%	1/4W
R6	1-249-441-11	CARBON	100K	5%	1/4W
R7	1-249-439-11	CARBON	68K	5%	1/4W
R8	1-249-435-11	CARBON	33K	5%	1/4W
R9	1-249-441-11	CARBON	100K	5%	1/4W
R10	1-249-413-11	CARBON	470	5%	1/4W
R11	1-249-420-11	CARBON	1.8K	5%	1/4W
R12	1-249-417-11	CARBON	1K	5%	1/4W
R13	1-249-421-11	CARBON	2.2K	5%	1/4W
R14	1-249-417-11	CARBON	1K	5%	1/4W
R15	1-249-428-11	CARBON	8.2K	5%	1/4W
R16	1-249-417-11	CARBON	1K	5%	1/4W
R17	1-249-417-11	CARBON	1K	5%	1/4W
R18	1-249-441-11	CARBON	100K	5%	1/4W
RV1	1-228-790-00	RES, VAR, CARBON 50K (VOL)			
S1	1-572-023-11	SWITCH, SLIDE (FUNCTION)			
S2	1-552-370-31	SWITCH, SLIDE (BAND)			
S3	1-553-856-00	SWITCH, KEY BOARD (DREAM BAR SNOOZE/SLEEP OFF)			
S4	1-553-856-00	SWITCH, KEY BOARD (SLEEP)			
S5	1-553-856-00	SWITCH, KEY BOARD (CLOCK)			
S6	1-553-856-00	SWITCH, KEY BOARD (TIME SET-H)			
S7	1-553-856-00	SWITCH, KEY BOARD (TIME SET-M)			
S8	1-553-856-00	SWITCH, KEY BOARD (ALARM)			
SP1	1-503-082-00	SPEAKER			
T1	Δ 1-449-801-11	TRANSFORMER, POWER			
T2	1-404-790-11	TRANSFORMER, IF (AM)			

ACCESSORY & PACKING MATERIAL

- 3-751-271-21 (US) MANUAL, INSTRUCTION
- 3-751-271-31 (Canadian) .. MANUAL, INSTRUCTION
- *3-902-428-01 (Canadian) .. INDIVIDUAL CARTON IN
- *3-902-473-01 (US) INDIVIDUAL CARTON
- *3-902-464-01 CUSHION

ICF-C240

SONY[®] SERVICE MANUAL

*US Model
Canadian Model
E Model*

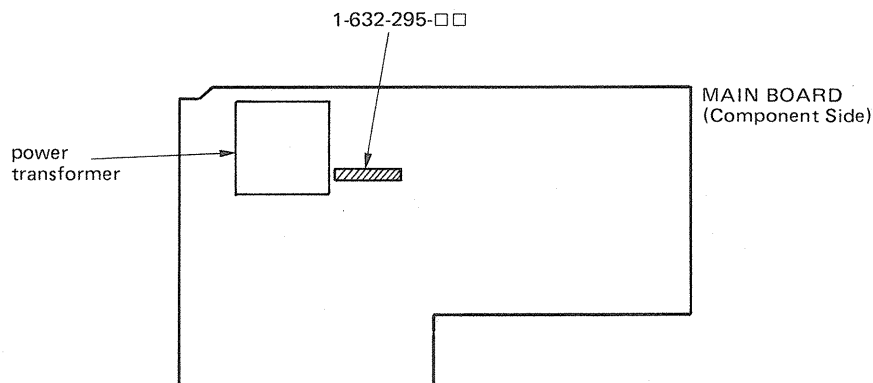
SUPPLEMENT-1

File this supplement with the Service Manual.

Subject:

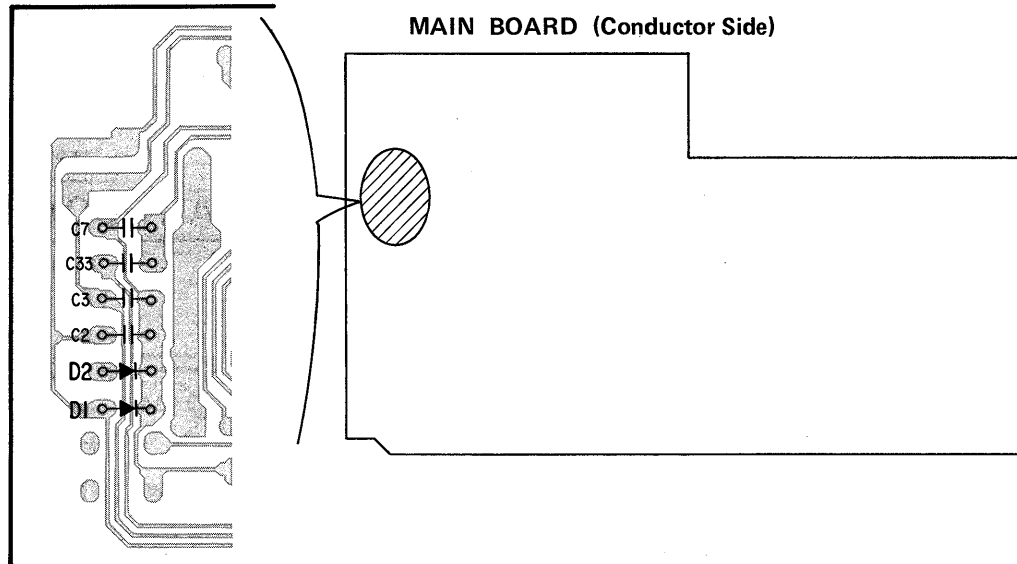
1. Main board change in US and Canadian model.
2. Panama model addition.

1. Main board has been changed in US and Canadian model.
New type is distinguished from former type by part number suffix on main board as illustrated below.



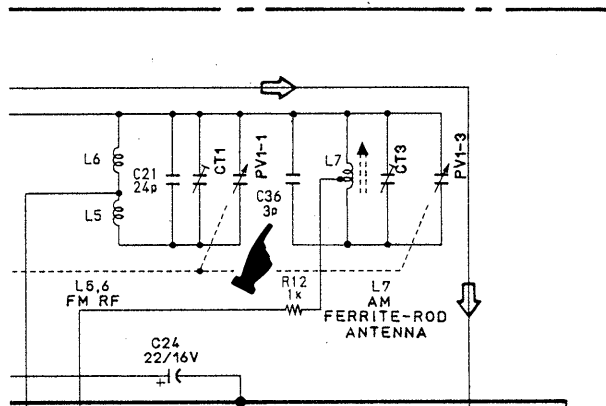
2. Panama model is added.
Panama model is almost the same as US and Canadian model.
Accessory and packing material of Panama model is the same as that of Canadian model.

- Changed portion of printed wiring board (part number suffix on main board: -12, -22)
Other parts are the same as those of printed wiring board on the Service Manual previously issued.



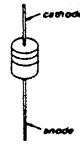
- Changed portion of schematic diagram (part number suffix on main board: -13, -23)
Other parts are the same as those of schematic diagram on the Service Manual previously issued.

Ref. No.	Part No.	Description
C36	1-102-936-00	CERAMIC 3PF 50V

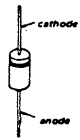


● SEMICONDUCTOR LEAD LAYOUTS

1SS119



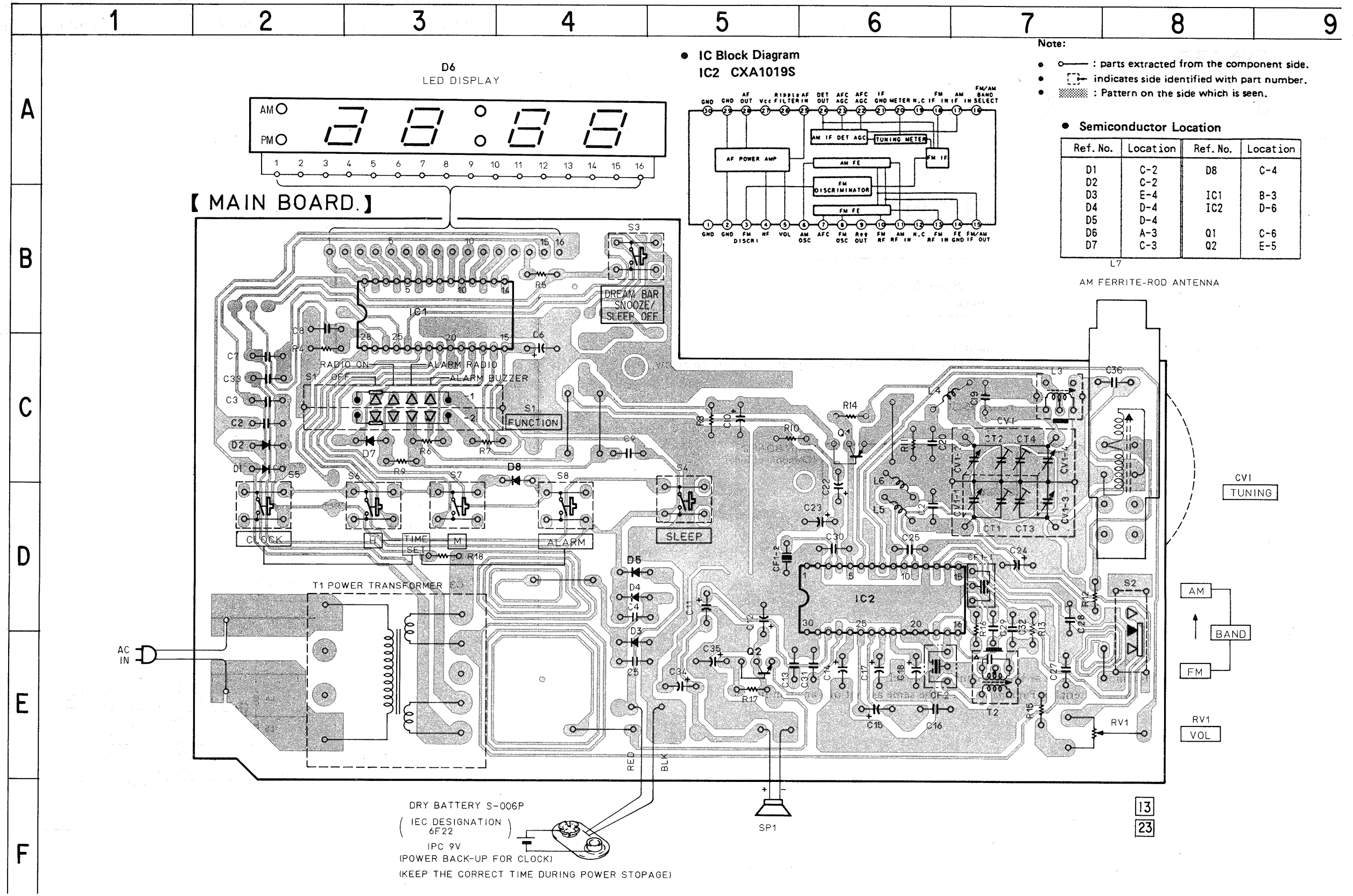
10E2



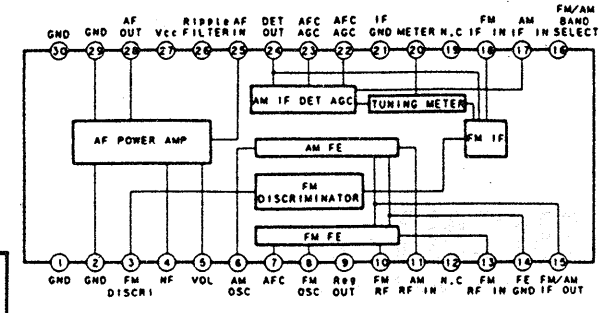
2SA1175-HFE



2SC2001-K2



● IC Block Diagram
IC2 CXA1019S



Note:

- : parts extracted from the component side.
- : indicates side identified with part number.
- ▨ : Pattern on the side which is seen.

● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D1	C-2	D8	C-4
D2	C-2	IC1	B-3
D3	E-4	IC2	D-6
D4	D-4		
D5	D-4		
D6	A-3	Q1	C-6
D7	C-3	Q2	E-5

L7
AM FERRITE-ROD ANTENNA

DRY BATTERY S-006P
(IEC DESIGNATION) 6F22
IPC 9V
(POWER BACK-UP FOR CLOCK)
(KEEP THE CORRECT TIME DURING POWER STOPAGE)

